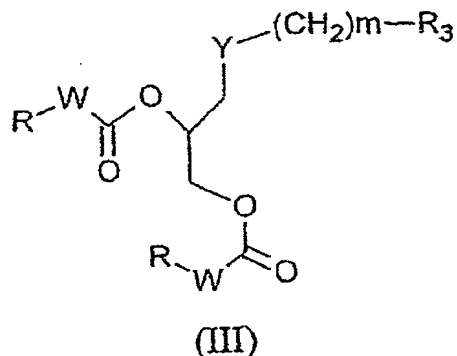


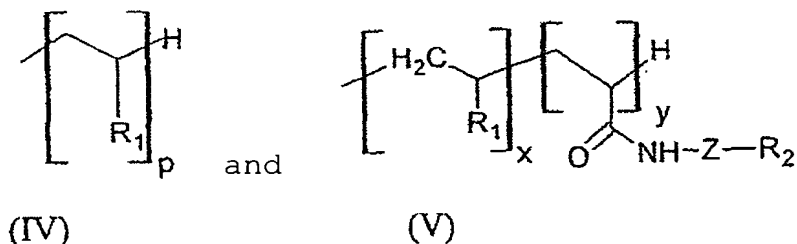
## CLAIMS

1. A compound of formula (III):



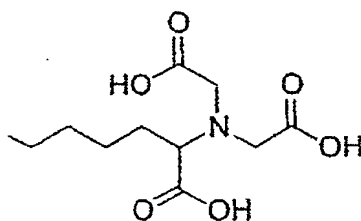
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in which  $R_3$  represents a group chosen from:

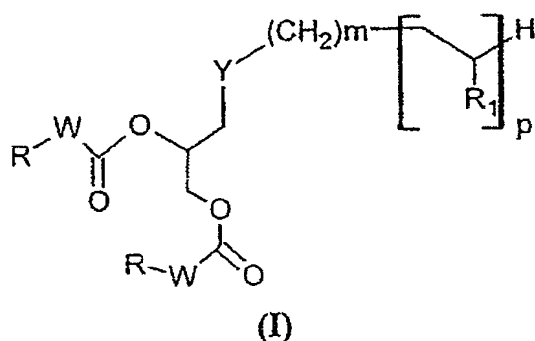


- 10        - Y represents a sulfur atom or an  
           -NH-CO-(CH<sub>2</sub>)<sub>n</sub>-X group, X represents a sulfur atom  
           S or a -CH<sub>2</sub>- group; n is an integer ranging from 0  
           to 10;
- 15        - R represents a group chosen from: C<sub>4</sub>-C<sub>24</sub>  
           hydrocarbon-based radicals; C<sub>4</sub>-C<sub>24</sub> fluorinated  
           hydrocarbon-based radicals; C<sub>4</sub>-C<sub>24</sub> thioalkyl  
           radicals;
- m is an integer ranging from 0 to 9, and, when  
           X = CH<sub>2</sub>, then 0 < m+n < 6;
- 20        - x represents 0 or an integer ranging from 1 to  
           30;
- y represents 0 or an integer ranging from 1 to  
           10;
- R<sub>1</sub> represents a hydrophilic group;

- $R_2$  represents a recognition group having an affinity for a biological target;
- Z is a spacer arm; Z is bound to  $R_2$  by means of a bond which can be chosen from the functions  
 $-O-CO-$ ,  $-CO-NH-$ ,  $-NH-CO-NH-$ ,  $-NH-CO-O-$ ,  $O-CO-O-$ ,  
 $-O-$ ,  $-CH=N-$  or  $-S-$  or by complexation of a nickel atom; Z is chosen from a peptide chain, an  $\Omega$ -amino acid, ethanolamine, 3-propanolamine and a diamine of formula  $-NH-(CH_2)_p-NH-$ , in which p represents an integer ranging from 2 to 6, or  $-Z-R_2$  represents a group NTA of the formula below:



2. A compound as claimed in claim 1, characterized in that the group R is chosen from the following radicals:
  - the thiooctyl radical,
  - n-butyl, tert-butyl, isobutyl, n-pentyl, isopentyl, n-hexyl, n-heptyl, n-octyl, n-nonyl, n-decyl, n-undecyl, n-dodecyl, n-tridecyl, n-tetradecyl, n-pentadecyl, n-hexadecyl, n-heptadecyl, n-octadecyl or the phytol radical  $(CH_3[CH(CH_3)(CH_2)_3]_3CH(CH_3)CH_2CH_2)$ ,
  - fluorinated hydrocarbon-based radicals corresponding to the formula  $-(CH_2)_t-(CF_2)_rF$ , in which r and t represent two integers with:  $14 \geq r+t \geq 4$ .
3. A compound as claimed in either one of claims 1 and 2, corresponding to formula (I):

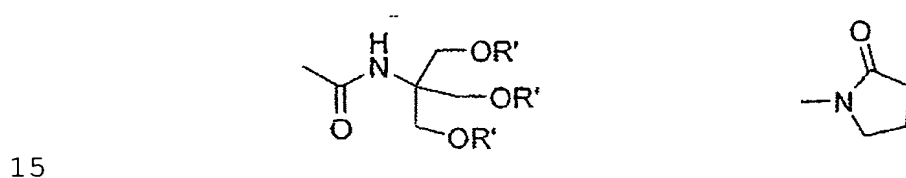


in which:

- Y represents a sulfur atom or a group

5 
$$\text{---NH---}\overset{\text{O}}{\parallel}\text{---(CH}_2\text{)}_n\text{---X---}$$
, X being chosen from S and CH<sub>2</sub> groups, n is an integer ranging from 0 to 10;

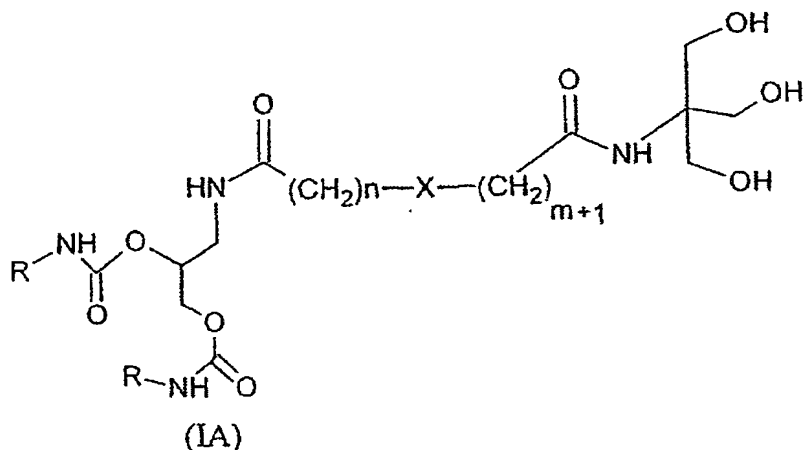
- m is an integer ranging from 0 to 9; and, when X = CH<sub>2</sub>, then 0 < m+n < 6;
- W represents an -NH- group or a -CH<sub>2</sub>- group;
- p represents an integer ranging from 1 to 50;
- R<sub>1</sub> represents a group chosen from the following radicals:



in which R' represents H or a hydrophilic group;

- R represents a group chosen from: C<sub>4</sub>-C<sub>24</sub> hydrocarbon-based radicals; C<sub>4</sub>-C<sub>24</sub> fluorinated hydrocarbon-based radicals; C<sub>4</sub>-C<sub>24</sub> thioalkyl radicals.

4. A compound as claimed in claim 3, characterized in that it corresponds to formula (IA):

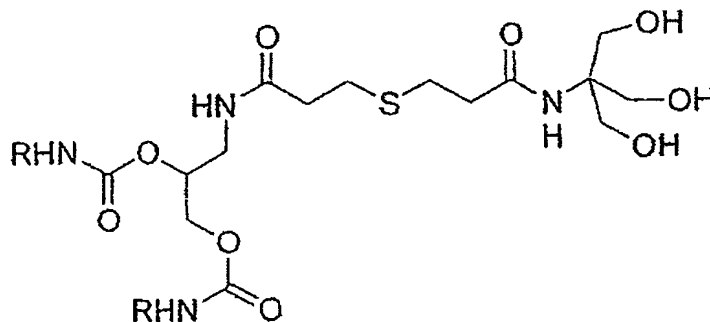


in which:

- X represents a sulfur atom S or a -CH<sub>2</sub>- group;
- n is an integer ranging from 0 to 10;
- 5    - m is an integer ranging from 0 to 9;
- when X = CH<sub>2</sub>, then 0 < m+n < 6;
- R represents a group chosen from: C<sub>4</sub>-C<sub>24</sub> hydrocarbon-based radicals; C<sub>4</sub>-C<sub>24</sub> fluorinated hydrocarbon-based radicals; C<sub>4</sub>-C<sub>24</sub> thioalkyl radicals.

5. A compound as claimed in claim 4, characterized in that R is chosen such that (IA) has a phase transition temperature of greater than 37°C.

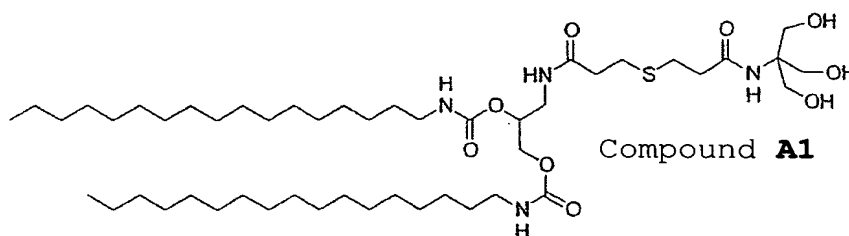
15 6. A compound as claimed in claim 4 or claim 5, characterized in that it corresponds to formula A:



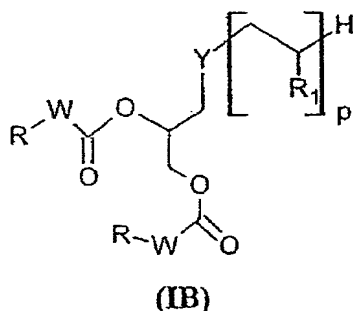
20                      Formula A

7. A compound as claimed in claim 6, characterized in

that it corresponds to formula **A1**:

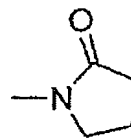
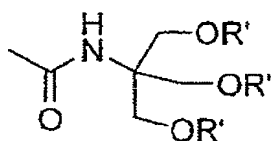


8. A compound as claimed in claim 3, corresponding to formula (IB):



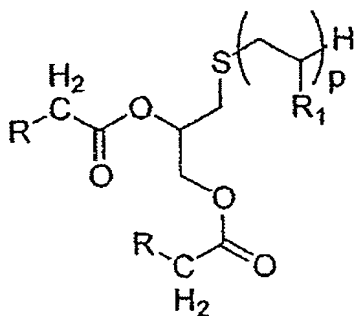
in which:

- Y represents a sulfur atom or the -NH-CO-CH<sub>2</sub>CH<sub>2</sub>S- group;
- W represents an -NH- group or a -CH<sub>2</sub>- group;
- p represents an integer ranging from 1 to 50;
- R<sub>1</sub> represents a group chosen from the following radicals:



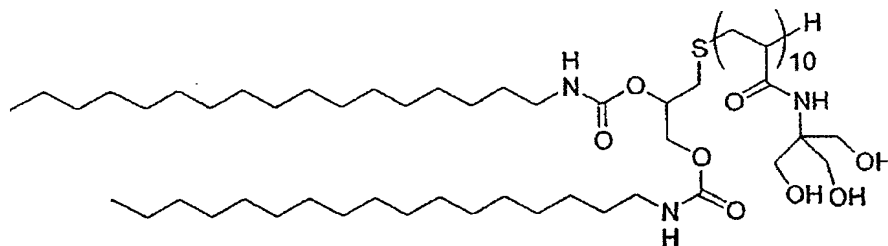
- in which R' represents H or a C<sub>4</sub>-C<sub>24</sub> polyhydroxylated hydrocarbon-based compound;
- R represents a group chosen from: C<sub>4</sub>-C<sub>24</sub> hydrocarbon-based radicals; C<sub>4</sub>-C<sub>24</sub> fluorinated hydrocarbon-based radicals; C<sub>4</sub>-C<sub>24</sub> thioalkyl radicals.

9. A compound as claimed in claim 8, characterized in that R is chosen such that (IB) has a critical micellar concentration of less than  $10^{-5}$  M.
10. A compound as claimed in claim 8 or claim 9, characterized in that it satisfies one or more of the conditions below:
- p represents an integer ranging from 1 to 5;
  - Y represents S.
11. A compound as claimed in any one of claims 8 to 10, characterized in that it corresponds to formula C in which p represents an integer ranging from 5 to 15:



Compound C

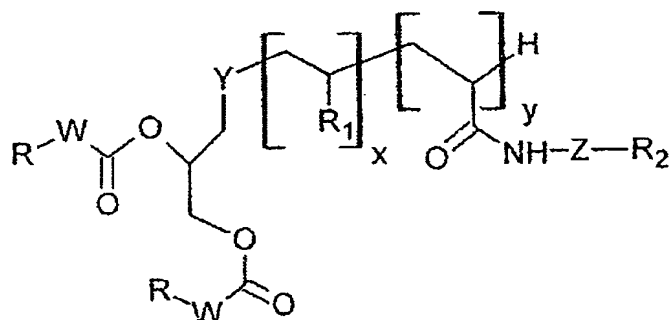
12. A compound as claimed in claim 11, characterized in that it corresponds to formula C1:



Compound C1

13. A compound as claimed in claim 1 or claim 2, characterized in that it corresponds to formula

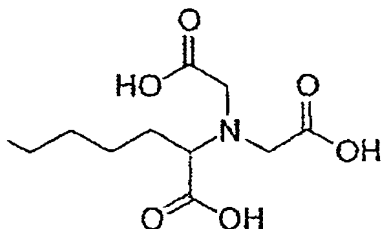
(II):



(II)

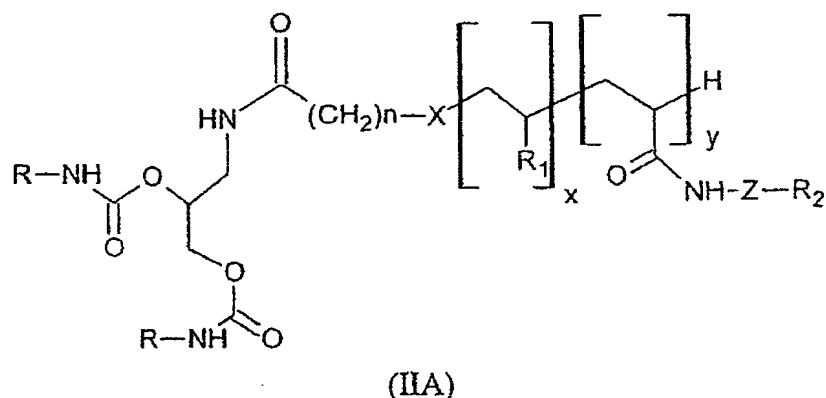
5 in which:

- Y represents a sulfur atom or the  $-NH-CO-(CH_2)_n-X-$  group in which X represents a sulfur atom S or a  $-CH_2-$  group, n is an integer ranging from 0 to 10;
- W represents an  $-NH-$  or  $-CH_2-$  group;
- x represents 0 or an integer ranging from 1 to 30;
- y represents 0 or an integer ranging from 1 to 10;
- $R_1$  represents a hydrophilic group;
- $R_2$  represents a recognition group having an affinity for a biological target;
- Z is a spacer arm; Z is bound to  $R_2$  by means of a bond which can be chosen from the functions  $-O-CO-$ ,  $-CO-NH-$ ,  $-NH-CO-NH-$ ,  $-NH-CO-O-$ ,  $O-CO-O-$ ,  $-O-$ ,  $-CH=N-$  or  $-S-$  or by complexation of a nickel atom; Z is chosen from a peptide chain, an  $\Omega$ -amino acid, ethanolamine, 3-propanolamine and a diamine of formula  $-NH-(CH_2)_p-NH-$ , in which p represents an integer ranging from 2 to 6, or  $-Z-R_2$  represents a group NTA of formula:



14. A compound as claimed in claim 13, characterized in that it corresponds to formula (IIA):

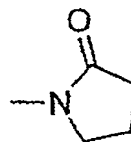
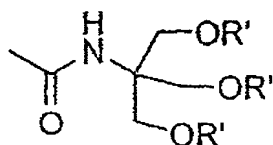
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15. A compound as claimed in claim 14, characterized in that one or more of the following conditions are met:

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- X = S,
- n = 2,
- R<sub>1</sub> is chosen from the following radicals:



15

in which R' represents H or a C<sub>4</sub>-C<sub>24</sub> polyhydroxylated hydrocarbon-based compound,

- R is chosen from the following radicals:
  - the thiooctyl radical,
  - n-butyl, tert-butyl, isobutyl, n-pentyl, isopentyl, n-hexyl, n-heptyl, n-octyl, n-nonyl, n-decyl, n-undecyl, n-dodecyl, n-tridecyl, n-tetradecyl, or the phytol radical

20



$(\text{CH}_3[\text{CH}(\text{CH}_3)(\text{CH}_2)_3]_3\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2),$

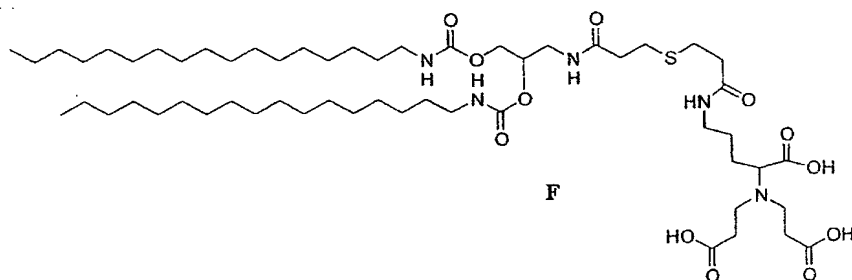
- fluorinated hydrocarbon-based radicals corresponding to the formula  $-(\text{CH}_2)_t-(\text{CF}_2)_r\text{F}$ , in which  $r$  and  $t$  represent two integers with:

5  $14 \geq r+t \geq 4,$

-  $R_2$  is chosen from antibodies, antibody fragments, small effector molecules that allow interaction with cell surface receptors, antigens, sugars and peptides.

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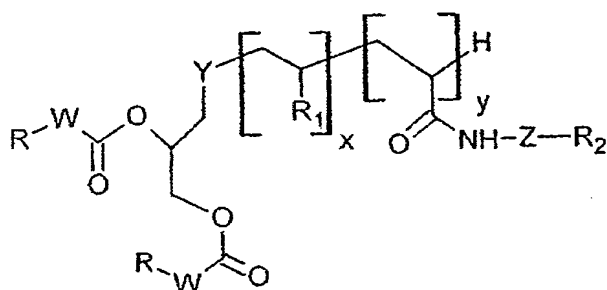
16. A compound as claimed in claim 15, characterized in that it corresponds to formula **F**:



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Formula **F**

17. A compound as claimed in claim 13, characterized in that it corresponds to formula (IIB):



(IIB)

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in which:

-  $Y$  represents a sulfur atom or the  $-\text{NH}-\text{CO}-\text{CH}_2\text{CH}_2\text{S}-$  group.

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18. A nanoparticle, characterized in that it contains one or more compounds of formula (I) as claimed in any one of claims 3 to 12, as constituent of its walls.
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19. The nanoparticle as claimed in claim 18, characterized in that it also contains from 1 to 5% of one or more compounds of formula (II) as claimed in any one of claims 13 to 17.
- 10
20. The nanoparticle as claimed in either one of claims 18 and 19, characterized in that it also contains a telomer or a polymer of a monomer of acrylic type contained in its inner aqueous cavity.
- 15
21. A combination of a nanoparticle as claimed in any one of claims 18 to 20 with a compound chosen from: therapeutic active ingredients, cosmetic substances, diagnostic agents and vaccines.
- 20
22. A therapeutic, diagnostic, vaccine or cosmetic composition comprising at least one active ingredient in combination with a liposome as claimed in any one of claims 18 to 20.
- 25